The Nautilus.

Vol. XXXV APRIL, 1922. No. 4

THE HELICOID GENUS LEPTAXIS LOWE

BY T. D. A. COCKERELL

Professor Pilsbry, in his guide to the Helices, treated *Leptaxis* as a valid genus, including the groups *Leptaxis* proper, *Pseudocampylæa* Pfeiffer, and *Lampadia* Albers. *Cryptaxis* Lowe and *Katostoma* Lowe were merged in true *Leptaxis*. Unfortunately the anatomy of only one species, *undata*, was known. I am greatly indebted to Mr. C. B. Cossart for living specimens of *L. erubescens* Lowe and *L. vulcania* Lowe, which he collected last month on Deserta Grande. The genitalia of *erubescens* prove to be of the same general type as those of *L. undata*, but with some striking differences, the most noticeable character being the regularly globose spermathecal bulb, in contrast with the boot-shaped structure of *L. undata*. That this feature of the spermatheca is not purely a specific one is shown by *L. vulcania* (pl. 3, fig. 14), which has the boot-shaped form of *undata*. Other features of *erubescens* (pl. 3, fig. 13) are: albumen-gland very large; penis-sac elongate, abruptly contracted at the beginning of the flagellum, which is about 5 mm. long; spermatheca with duct 8 mm. long; dark-sac as usual in the genus; filiform glands about 11, simple, three attached longitudinally. In *L. vulcania* the flagellum is much longer, about 12 mm., but the snail is much larger. I examined the radulæ of *erubescens* and *undata* in the Gwatkin collection. They differ appre-

ciably, *crubescens* having well-developed outer cusps on first laterals, and marginals with outer cusp bifid or trifid.

We must, I think, conclude that Pilsbry's *Leptaxis* s. str. is divisible into two subgenera, if not genera. Typical *Leptaxis* includes *erubescens, furva, chrysomela, fluctuosa,* and I believe *membranacea,* which is not to be associated with *Lampadia webbiana* (Lowe). The other subgenus, *Cryptaxis* Lowe, will include *undata, vulcania, leonina, nivosa, psammophora, wollastoni* and *forensis. Pseudocampylæa* includes *lowei* and *portosanctana.*

The species of these groups require some revision, toward which I offer a few notes, partly dealing with nomenclature.

Pseudocampylæa lowei Fér. First described and figured by Lowe as *Helix portosanctana* var. *gigantea,* but Lowe's name is preoccupied in *Helix,* and cannot be taken up.

P. lowei var. *minor* (Paiva). This variety, with whorls flattened above, and spire depressed, is very distinct. Mr. A. C. de Naronha gave me a specimen, and showed me others. It occurs fossil at the Zimbral d'Areia, Porto Santo, and is absent from other localities where *lowei* abounds. Paiva's varieties must apparently be recognized as named according to the rules, although the word in italics is always the first word of the diagnosis, and the proposal of definite names seems more an accident of printing than a deliberate purpose.

Leptaxis (*Cryptaxis*) *groviana* (Fér.). This must be the name for the common Madeiran *undata* Lowe, the latter name being preoccupied (*Helix undata* Gmelin). The name *corrugata* Solander cannot be taken up, as *H. corrugata* Gmelin was earlier published.

Leptaxis fluctuosa (Lowe). I can only conclude that this is a distinct species, in spite of the existence of forms more or less intermediate between it and *L. chrysomela* Pfr. On Jan. 23 I was very fortunate in finding some splendid specimens of *L. fluctuosa,* of unusually recent appearance, in the gulch east of the Pico d'Anna Ferreira, Porto Santo. The largest has max. diam. 20 mm. One specimen, with max. diam. 18.5 mm., is beautifully ornamented with interrupted

clear ferruginous bands, one a short distance below the suture, the other just above the keel. These bands are interrupted by irregular white opaque flecks at frequent intervals. The shell is much thinner and more sharply keeled than *L. chrysomela.* The species is considered to be extinct, but the finding of such fresh specimens suggests that it may yet be found alive.

L. chrysomela var. *bifasciata* n. var. Max. diam. 11 mm., with the usual solid form and orange mouth. Two very broad (diam. about 1.5 mm.) grey bands, flecked with white, one above, the other below the periphery. The bands have a faint reddish tint, and were doubtless dark or red in life. Fossil in Porto Santo. The typical form is chalky white, unbanded.

Leptaxis exornata (Deshayes). This seems to be the proper name for *L. erubescens,* Lowe's name being invalidated by *H. erubescens* Solander, Portland Cat., 1786, as Mr. Tomlin kindly pointed out to me. The description of *exornata* agrees exactly, except that the pale band between the dark ones is not really white, with a small elevated form of *erubescens* found in Madeira. My specimens are from the Pico do Infante, collected by the Rev. Drummond Paterson. *H. simia* Férussac is also apparently *erubescens,* but if so, the figure is extremely bad, and Pfeiffer in Conchylien Cabinet remarks that he might have thought it a variety of *H. splendida* had not Beck declared it to be from Madeira. Pfeiffer had not seen the shell, but described it from Férussac's figures. The shell is rather unusually depressed for *erubescens.*

Leptaxis furva var. *grandissima* n. var. Shell very large, almost 26 mm. max. diameter; last whorl swollen and aperture large; one band in the usual position, but the shell is white and the band is colored as in the specimen of *fluctuosa* described above. In the R. McAndrews collection at the University of Cambridge. The label gives only Madeira as the locality, but the specimen is probably a fossil from Caniçal.

Leptaxis forensis (Wollaston). This is certainly very close to *L. wollastoni* Lowe, and if considered only a variety, it must take the name *L. wollastoni* var. *minor* (Paiva), which has priority.